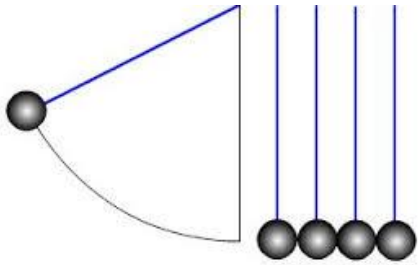
Physics 112 Formulae



$$v = \frac{\Delta d}{\Delta t} \qquad a = \frac{\Delta v}{\Delta t} \qquad v_f = v_i + a\Delta t$$

$$\Delta d = v_i \Delta t + \frac{1}{2} a t^2 \qquad \Delta d = V_f \Delta t - \frac{1}{2} a t^2 \qquad \Delta d = \frac{(v_i + v_f)}{2} \Delta t$$

$$v_f^{\,2} = v_i^{\,2} + 2ad \qquad F_{net} = ma \qquad F_{net} = F_{applied} - F_{friction} \qquad F_g = mg$$

$$F_f = \mu F_N \qquad F_{A\ on\ B} = -F_{B\ on\ A} \qquad F_{gy} = mg\cos\theta \qquad F_{gx} = mg\sin\theta$$

$$p = mv \qquad J = F\Delta t \qquad \Delta p = F\Delta t \qquad F\Delta t = mv_2 - mv_1$$

$$W = F_{||}\Delta d \qquad W = F\cos\theta\Delta d \qquad W = \Delta E$$

$$E_k = \frac{1}{2} mv^2 \qquad E_g = mg\Delta h \qquad E_e = \frac{1}{2} kx^2 \qquad F_a = kx$$

$$P = \frac{W}{\Delta t} \qquad P = \frac{\Delta E}{\Delta t} \qquad Eff = \frac{WorkOut}{WorkIn} x100 \qquad Eff = \frac{EnergyOut}{EnergyIn} x100$$

$$E_k + E_g + E_e = E'_k + E'_g + E'_e$$

Physics 122 Formulae

$A_x = \vec{A}\cos\theta$ $A_y = \vec{A}\sin\theta$ $m_A v_A + m_B v_B = m_A v'_A + m_B v'_B$

$H = \frac{v_i^2 \sin^2\theta}{2g}$ $T = \frac{2v_i \sin\theta}{g}$ $R = \frac{v_i^2 \sin 2\theta}{g}$

$a_c = \frac{v^2}{r}$ $F_c = \frac{mv^2}{r}$ $F_c = 4\pi^2 mrf^2$ $v_c = \frac{2\pi r}{T}$ $f = \frac{1}{T}$ $T = \frac{1}{f}$

$\left(\frac{T_a}{T_b}\right)^2 = \left(\frac{r_a}{r_b}\right)^3$ $F = \frac{Gm_1 m_2}{r^2}$ $\frac{Gm_S}{4\pi^2} = \frac{r^3}{T^2}$ $v^2 = \frac{GmS}{r}$

$v = f\lambda$ $f = \frac{N}{\Delta t}$ $T = \frac{\Delta t}{N}$ $f = \frac{1}{T}$

$T = 2\pi\sqrt{\frac{l}{g}}$ $T = 2\pi\sqrt{\frac{m}{k}}$ $F = \frac{kq_1 q_2}{r^2}$

$E_Q = \frac{F_Q}{q}$ $g = \frac{Fg}{m}$ $E = \frac{kq}{r^2}$ $g = \frac{Gm_S}{r^2}$

$V = \frac{\Delta E_q}{q}$ $q = I\Delta t$ $q = Ne^-$ $R = \rho\frac{L}{A}$ $V = IR$

$W = Pt$ $P = IV$ $P = \frac{V^2}{R}$ $P = I^2 R$

$R_{eq} = R_1 + R_2 + R_3 + \ldots$ (*series*)

$\frac{1}{R_E} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \ldots$ (*parallel*)

$I_S = I_1 = I_2 = I_3 = \ldots$ *(series)*

$I_T = I_1 + I_2 + I_3 = \ldots$ (*parallel*)

$V_S = V_1 + V_2 + V_3 + \ldots$ (*series*)

$V_S = V_1 = V_2 = V_3 = \ldots$*(parallel)*

Constants:

$G = 6.67259 \times 10^{-11} \frac{N \cdot m^2}{kg^2}$ $R_E = 6.37 \times 10^6 m$ $M_E = 5.98 \times 10^{24} kg$

$K = 9.0x10^9 \frac{N \cdot m^2}{C^2}$ $1e^- = 1.6x10^{-19} C$